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Federal Lands Alternative Transportation Systems Study

Program Development

prepared for

Federal Highway Administration
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prepared by

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This report documents alternative transportation needs in lands managed by the National Park Service, the U.S. Fish and Wildlife Service, and the Bureau of Land Management.

Volume IV identifies several federal program structure options that could provide the Federal land management agencies (FLMAs) with a source of funding to assist in implementing transit systems on Federal lands. Interest in implementing transit systems on federally-managed lands has grown recently. Many sites are experiencing high visitation levels that are continuing to increase. Federal lands site managers often view transit systems as a way to address the challenges created by these high visitation levels. The lack of a dedicated funding source for implementing transit systems is a significant barrier to providing transit services. It is difficult for Federal land management agencies to obtain funding through existing Federal highway and transit programs since the vast majority of funding is distributed to State and local transportation authorities. Very limited funds are available for implementing transit on federally-managed lands through the Federal Lands Highway Program. Volume IV also includes a summary of transit funding needs for the National Park Service, the U.S. Fish and Wildlife Service and the Bureau of Land Management.

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Federal Lands Alternative Transportation Systems (ATS) Study

Program Development

prepared for

Federal Highway Administration
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in association with

National Park Service
Bureau of Land Management
U.S. Fish and Wildlife Service

prepared by

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Executive Summary

Section 3039 of the Transportation Equity Act for the 21st Century (TEA-21) required the Secretary of Transportation, in coordination with the Secretary of the Interior, to "undertake a comprehensive study of alternative transportation needs in national parks and related Federal Lands." The results of the Federal Lands Alternative Transportation Systems (ATS) study, as summarized in the Volume III of this report,[1] identified significant transit needs at sites managed by the National Park Service (NPS), the Bureau of Land Management (BLM), and the U.S. Fish and Wildlife Service (USFWS). Two hundred seven sites were evaluated in the study; 85 with extensive field visits and 122 with telephone calls or brief visits. Transit needs were identified at 118 of 169 NPS sites that were included in the study, 6 of 15 BLM sites, and 13 of 23 USFWS sites.

Many of these popular federally-managed sites are experiencing very high visitation levels that are continuing to increase. Site managers often view transit system implementation as a way to address the challenges created by these high visitation levels. Implementing transit on federally-managed lands can help achieve the following goals:

- Relieve traffic congestion and parking shortages;
- Enhance visitor mobility and accessibility;
- Preserve sensitive natural, cultural, and historic resources;
- Provide improved interpretation, education and visitor information services;
- Reduce pollution; and
- Improve economic development opportunities for gateway communities.

Transportation needs and resource preservation goals often work together to encourage implementation of transit services. Many sites can accommodate additional visitors but cannot provide the roadway and parking capacity required for additional automobiles. Reasons may include negative resource impacts of roadway and parking construction, prohibitive cost, or both. Many site managers believe that transit can serve as a cost-effective method of accommodating additional demand, while at the same time preserving resources and providing the visitor a more pleasant and enlightening experience.

This study identified a number of barriers to successful implementation of transit systems at Federal land management agency (FLMA) sites. Barriers include the lack of a dedicated funding source for developing, implementing, and operating and maintaining transit systems, difficulty in selecting appropriate equipment, lack of support for transit systems by certain gateway communities, inadequate marketing and public information, and

[1] *Federal Lands Alternative Transportation Systems (ATS) Study: Summary of National ATS Needs.*

technical challenges. The Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA) are able to provide some support in the areas of planning, design, construction, and procurement to assist in the successful implementation of transit systems, but these agencies currently provide very limited financial support for the implementation of transit systems.

The FHWA administers the Federal Lands Highway Program (FLHP) that provides funding for the FLMAs. The FLHP primarily funds roadway and bridge projects, although three categories of FLHP funds may be used for transit projects: the Park Roads and Parkways program, the Forest Highway program, and the Indian Reservation Roads program. When FLHP funds are used for transit projects, however, there are fewer funds available for roadways and bridge projects. There is currently a gap between the funds needed by the FLMAs to maintain their roads and bridges in current conditions and the funds made available through the FLHP. Therefore when FLHP funds are used for transit projects rather than roadway and bridge projects, this gap increases. Furthermore, public law prohibits the use of FLHP Refuge Roads program funds for transit, and the BLM does not have a dedicated source of funding for transit.

In the case of other programs administered by the FHWA and the FTA, the vast majority of funding is distributed to State and local transportation authorities. Therefore, in order for transit projects that primarily benefit FLMAs to receive these funds, these projects have to be sponsored by State and local transportation authorities, programmed through the statewide or metropolitan transportation planning processes, and deemed a higher priority than other State or metropolitan transportation projects. Although this approach has worked in some instances, the demand by State and local transportation authorities currently exceeds available funding, so these programs cannot be considered as significant, stable sources of funds for supporting transit projects that primarily benefit the FLMAs.

The study identified transit needs for both the short-term (2001-2010) and the long-term (2011-2020) periods. The total combined need for both short-term and long-term periods is estimated at approximately $1.71 billion. Of this $1.71 billion, approximately 40 percent ($678 million) is required between 2001 and 2010, with the remaining 60 percent ($1.03 billion) required between 2011 and 2020. Table ES.1 summarizes the ATS needs identified in the study.

The growth in costs between the short-term (2001-2010) and the long-term (2011-2020) periods is a result of two types of cost increases. A number of capital intensive projects were identified during the study that will require long lead times to plan and obtain funding. Therefore, the capital costs for these projects are included in the long-term period costs. Secondly, the annual operations and maintenance costs increase substantially because of the greater number of systems operating during the long-term period.

There appears to be strong justification for a Federal funding program that could assist in addressing Federal lands transit needs by providing the stability required for these systems to succeed. Since it is unlikely, however, that a federally-funded program would address all of these needs, partnerships with local governments, private business interests, and support groups will be critical in order to establish an ongoing and successful ATS program for Federal lands.

Table ES.1 Summary of Alternative Transportation System (Transit) Needs on Federally-Managed Lands*

	Short-Term Costs (2001-2010)	Long-Term Costs (2011-2020)	Total Costs (2001-2020)
National Park Service			
Surface	$510,000,000	$ 827,000,000	$1,337,000,000
Water	94,000,000	123,000,000	217,000,000
NPS Total	**$604,000,000**	**$ 950,000,000**	**$1,554,000,000**
Bureau of Land Management			
Surface	$ 6,000,000	$ 7,000,000	$ 13,000,000
Water	9,000,000	8,000,000	17,000,000
BLM Total	**$ 15,000,000**	**$ 15,000,000**	**$ 30,000,000**
U.S. Fish and Wildlife Service			
Surface	$ 40,000,000	$ 53,000,000	$ 93,000,000
Water	19,000,000	14,000,000	33,000,000
USFWS Total	**$ 59,000,000**	**$ 67,000,000**	**$ 126,000,000**
TOTAL ATS Needs	**$678,000,000**	**$1,032,000,000**	**$1,710,000,000**

*Note: All estimates are in 1999 dollars and are not adjusted for inflation.

If a Federal lands transit funding program is established to assist in addressing the transit needs of the FLMAs, it is recommended that the following items be included in the legislation establishing the funding program:

- A transit program with separate funding categories for each of the three Department of the Interior (DOI) agencies (NPS, FWS, BLM).
- A requirement that all projects be subject to the transportation planning procedures developed under Title 23 U.S.C. 204(a). The Section 204 procedures require the FLMAs to carry out transportation planning processes that are consistent with the statewide and metropolitan transportation planning processes in Title 23 U.S.C. 134 and 135.
- Flexibility to use funds for leasing of vehicles.
- Flexibility to use funds for contract operations.

1.0 Introduction

1.1 Need for Program

Interest in transit by the FLMAs has been on the rise for several years. Heavily visited sites such as Grand Canyon, Yosemite, Bryce Canyon, and Great Smoky Mountains National Parks are in the process of expanding existing systems, implementing new systems or assessing major transit proposals. Successful implementation of new systems has already taken place in Acadia National Park (NP) and Zion NP, both with important support from gateway communities. While the larger, more heavily visited national parks have received most of the attention in this area, many other smaller sites may also benefit from transit services.

Two hundred seven sites were evaluated in this study; 85 with extensive field visits and 122 with telephone calls or brief visits. Transit needs were identified at 118 of the 169 National Park Service (NPS) sites that were included in the study, 6 of the 15 Bureau of Land Management (BLM) sites, and 13 of the 23 U.S. Fish and Wildlife Service (USFWS) sites. Identified vehicle needs included trams, standard buses, small buses, historic trolleys, trolley cars, waterborne vessels, and aerial tramways. There are also significant needs for supporting infrastructure, including shelters, maintenance and storage facilities, docks, piers, and information systems. It should be noted that other FLMAs that may have transit needs were not included in the study. These include the USDA Forest Service, the U.S. Army Corps of Engineers, and the Bureau of Reclamation.

Site managers often view transit system implementation as a way to address the challenges created by high visitation levels. Implementing transit on federally-managed lands can help achieve the following goals:

- **Relieve Traffic Congestion and Parking Shortages –** Transit can be used to reduce congestion and relieve parking shortages on Federal lands. Sites such as the Grand Canyon NP, the Great Smoky Mountains NP and popular beach areas can accommodate more visitors but not more vehicular traffic. By providing transit services, fewer vehicles can be used to transport a greater number of visitors to destinations within Federal sites. The use of transit services also relieves the need for providing additional parking spaces within the site for privately owned vehicles.

- **Enhance Visitor Mobility and Accessibility –** Transit enhances mobility by reducing traffic congestion and/or providing a convenient means for visitors to travel between attractions within a federally-managed site. Today, motorized travel within Federal sites is primarily accomplished with private automobiles. Travel can be made much easier, and congestion reduced, by implementing trams or shuttle bus service. This enhances the visitor's experience by permitting them to enjoy their site experience rather than concentrating on driving or finding scarce parking spaces.

Accessibility can also be enhanced through the use of transit. At some sites, visitation to the site itself, or certain attractions within the site, is restricted due to lack of roadway and parking capacity. In these instances, transit provides the ability for a greater number of people to visit the site or the more popular destinations within the site. Additionally, transit can provide visitors with disabilities improved access to many sites.

- **Preserve Sensitive Natural, Cultural, and Historic Resources –** Natural, cultural, and historic resources are being negatively impacted because of parking shortages and heavy foot traffic. Parking lot capacities often do not meet parking needs, so visitors park on roadway shoulders and in other inappropriate locations, damaging the resources. Oftentimes, expanding the parking areas is incompatible with resource preservation needs. Transit can limit parking demands in these areas.

  Popular areas within the sites often cannot accommodate the foot traffic demands during peak hours, so visitors stray off designated paths and damage the resources. Transit can be used to limit the amount of foot traffic in an area and to limit the locations where foot traffic is allowed.

- **Reduce Pollution –** Existing transit vehicle fleets often consist of old equipment with high particulate and noxious gas output. A dedicated source of funding would permit these vehicles to be replaced, thereby reducing air pollution. New clean fuel technologies would be adopted whenever possible. New standard fuel vehicles, which have much lower emissions than the older vehicles, would be purchased where clean fuel technologies were impractical. Air pollution could also be reduced through transit implementation at some sites by decreasing the total number of vehicles accessing the sites. Noise pollution would also be decreased by purchasing new transit vehicles because they operate much more quietly than older vehicles.

- **Provide Improved Interpretation, Education, and Visitor Information Services –** Transit can be used to improve visitor interpretive and educational opportunities. During the study, site managers identified opportunities to use transit to educate visitors about the environmental sensitivity of natural sites. At cultural and historical sites, transit can enhance the ability of site personnel to present past events in a logical, sequential manner.

- **Improve Recreational and Economic Opportunities –** Many sites are participating in regional initiatives to enhance recreational activities that extend beyond site boundaries, including hiking, bicycling and water-oriented recreation. Transit services can be used to transport people and their equipment to drop-off and pick-up points, thereby increasing the number of participants in these recreational activities. This provides opportunities for generating additional revenues in gateway communities.

  In certain instances, transit can improve economic opportunities in gateway communities by allowing more visitation to a site. At some sites, visitation is limited by the number of vehicles that can access the site. For these situations, transit can increase the visitation levels, resulting in increased economic revenues in the local communities through increased use of hotels, restaurants, and other visitor-oriented services.

This study identified a number of the barriers to successful implementation of transit systems. The following are some of these barriers:

- **Lack of a Dedicated Funding Source for Developing, Implementing, and Operating and Maintaining Transit Systems –** The FHWA administers the FLHP that provides funding for the FLMAs. The FLHP primarily funds roadway and bridge projects, although three categories of FLHP funds may be used for transit projects: the Park Roads and Parkways program, the Forest Highway program and the Indian Reservation Roads program. When FLHP funds are used for transit projects, however, there are fewer funds available for roadway and bridge projects. There is currently a gap between the funds needed by the FLMAs to maintain their roads and bridges in current conditions and the funds made available through the FLHP. Therefore when FLHP funds are used for transit projects rather than roadway and bridge projects, this gap increases. Furthermore, public law prohibits the use of FLHP Refuge Roads Program funds for transit, and the BLM does not have a dedicated source of funding for transit.

  In the case of other programs administered by the FHWA and the FTA, the vast majority of funding is distributed to State and local transportation authorities. Therefore, in order for transit projects that primarily benefit FLMAs to receive these funds, these projects have to be sponsored by State and local transportation authorities, programmed through the statewide and metropolitan transportation planning processes, and deemed a higher priority than other State or metropolitan transportation projects. Although this approach has worked in some instances, the demands by State and local transportation authorities currently exceed available funding, so these programs cannot be considered as significant, stable sources of funds for supporting transit projects that primarily benefit the FLMAs.

- **Difficulty in Selecting Appropriate Equipment –** In general, the FLMAs do not have extensive expertise in the various transit technologies. Therefore, it is difficult for them to select the most appropriate technologies to be implemented for their specific needs.

- **Lack of Support for Transit Systems by Certain Gateway Communities –** Resistance to transit implementation has come from some gateway communities who fear that it is the first step in restricting or banning automobiles from the site. Such actions, it is feared, will lead to reduced visitation and economic hardship for local residents. The FLMAs have indicated that automobile traffic will only be restricted when alternative transportation systems are provided to accommodate those visitors.

- **Inadequate Marketing and Public Information –** In some instances where transit services exist at a site, there should be additional marketing and public information efforts to increase public awareness of the transit services.

- **Technical Challenges –** The implementation of transit systems requires expertise in public transportation service planning, design, establishment and operations and maintenance. Most FLMA sites are unfamiliar with this type of project implementation, and require significant assistance from transit experts.

  There appears to be a strong justification for a Federal lands transit program. The establishment of such a program could alleviate many of the barriers to implementing transit listed above. The program could provide the stability required for Federal transit systems to succeed. Since it is unlikely, however, that a federally-funded program would address all of the FLMA transit needs, partnerships with local governments, private business interests, and support groups will be critical in order to establish an ongoing, and successful ATS program for Federal lands.

1.2 ATS Funding Needs

For the purposes of this study, ATS refers to transit services. The study identified existing transit services that need to be expanded or modified, as well as new transit services. The identified transit needs include services that would operate completely within Federal sites, and services that would link Federal sites to surrounding communities. Transit vehicles identified in this study include trams, standard transit buses, small buses, historic trolleys, trolley cars, waterborne vessels, and aerial tramways. The ATS needs cost figures in the study include project development costs, capital costs, and operations and maintenance costs.

The study identified transit needs for both the short-term (2001-2010) and long-term (2011-2020) periods. The total combined need for both short-term and long-term periods is estimated at approximately $1.71 billion. Of this $1.71 billion, approximately 40 percent ($678 million) is required between 2001 and 2010, with the remaining 60 percent ($1.03 billion) required between 2011 and 2020. Table 1.1 summarizes the ATS needs identified in the study.

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The growth in costs between the short-term (2001-2010) and the long-term (2011-2020) periods is a result of two types of cost increases. A number of capital intensive projects were identified during the study that will require long lead times to plan and obtain

funding. Therefore, the capital costs for these projects are included in the long-term period costs. Secondly, the annual operations and maintenance costs increase substantially for this period because of the greater number of systems operating during the long-term period.

The study found that, at a majority of sites, transit needs are modest and can be served by a small number of vehicles operating on a seasonal basis. At many sites, there appear to be opportunities to recover at least a portion of operations and maintenance costs through fares. At a smaller number of sites, it may be possible to charge fares that are adequate to recover a portion of capital investment as well.

Both this study and the NPS *Inventory and Assessment of National Park Visitor Transportation Systems* (VTS) study prepared in 1999 identified existing transportation systems and tours that are currently run as concessions and are expected to continue their operation without subsidy. Therefore, they were not included as transit needs in this study. In addition, there are probably a small number of additional sites that were not identified during the course of this study that may have transit needs.

Information on existing transit systems at national parks can be found in the VTS study, which focused on an inventory of existing systems. Table 1.2 highlights information about existing NPS transit systems.

Table 1.2 National Park Service Visitor Transportation System Inventory
Summary of Results

NPS Units with VTS Identified	50
Number of VTS Identified	63
Percentage of systems using alternate fuel vehicles	10%
Percentage of systems concessioner owned and operated	65%
Percentage of systems NPS-owned and operated	16%
Percentage of systems receiving NPS financial support	27%
Percentage of systems making payments to NPS	63%
Percentage of systems reporting plans to modify or expand	59%

Source: *Inventory and Assessment of National Park Visitor Transportation Systems*, Final Report prepared for National Park Service by Parsons Brinckerhoff Quade and Douglas, August 6, 1999.

1.3 Alternatives for Funding Transit Systems

A variety of public and private funding sources are available to fund FLMA transit needs. These are documented in detail in Volume II, Financing Opportunities for Alternative

Transportation Systems. The non-Federal funding sources, which are documented in Volume II, include:

- User fees;
- Private sponsorships;
- Advertising;
- State and local funds;
- Fund raising and contributions;
- State infrastructure banks;
- Public-private partnerships;
- Bonds;
- Certifications of Participation;
- Leasing; and
- Federal credit.

1.4 Current and Future Successes

Visitor transportation systems have been in existence at FLMA sites since the early 1900s. The recent NPS VTS survey summarized in Table 1.2 identified 63 systems in 50 different parks, many of which have a long history of service. Interest in transit has increased recently, due in part to the successful implementation of transit systems at several sites with high visitation. Additional interest was generated through the 1997 Memorandum of Understanding (MOU) between the Secretaries of Transportation and the Interior. The MOU provided the impetus for the Department of Transportation and the NPS to work more closely together, incorporating a "comprehensive effort to improve public transportation in national parks."

Five demonstration projects, all located at sites with heavy congestion, were specifically identified in the MOU. Three of these demonstration sites, Acadia, Zion, and Yosemite National Parks, are discussed briefly below, along with the J.N. "Ding" Darling National Wildlife Refuge, which has successfully implemented a transit system.

The Island Explorer at **Acadia NP** is one of the recent transit success stories at a Federal lands site. The service has received very favorable publicity and is expected to grow in popularity. The system began serving Acadia NP and the communities on Mount Desert Island (MDI) in the summer of 1999. The system is intended to help sustain the strong tourist industry on MDI while reducing traffic congestion and motor vehicle emissions. The project is a public-private partnership involving Federal, State and local agencies, and nonprofit and private partners.

Phase 1 service began in June 1999 and included eight propane-powered buses operating on six routes. The Village Green in Bar Harbor is the transit hub and transfer point for the

service. The six routes connect the campgrounds and motels on MDI with the business districts of the four island towns and popular tourist destinations in Acadia NP. Phase 2, implemented in 2000, enhanced Phase 1 service by adding nine more propane buses, thus permitting continuous service around the park loop road, more frequent service to the municipalities and campgrounds, and increased passenger capacity. The transit system takes advantage of the fact that sufficient tourist parking exists at the campgrounds and motels on MDI, but is lacking in the business districts of the towns and in the park. Overnight visitors are encouraged to leave their vehicles at the campgrounds and motels and to visit the park and the island communities via the transit system.

One year before implementation of the Island Explorer, a pilot program was developed to test the viability of the proposed system. A campground shuttle service that had previously charged a fare was changed to a free service. Ridership increased by 600 percent, providing a strong indication that a fare free system would attract large numbers of riders. A study commissioned by the NPS, found that 51 percent of visitors surveyed indicated they would use a free shuttle bus to access the park. However, only 25 percent of visitors surveyed said they would use the bus if a fee were charged. The Park and its partners successfully implemented a funding strategy that permitted service to be operated without fares. The first set of buses were purchased with $628,000 in Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds while the second group of buses were purchased with $934,000 Federal Lands Highway Program, Park Roads and Parkways funds. Initial operating and maintenance funds are being provided through a combination of Federal transit funds, local tax dollars approved by residents of the four Mount Desert Island municipalities and contributions from local businesses served by the system.

The first season of shuttle operation was described by Park management as a remarkable success. The system planners had established a goal of 1,000 riders per day with an expectation of 700 riders per day. During the months of July and August (high season) ridership ranged between 2,000 and 3,000 per day. Ridership totaled 142,000 over a 76-day period. The high demand necessitated adding buses and trips to the system at extra cost. As the system continues to expand, a dedicated source of funding is needed to sustain the program into the future.

At **Zion NP,** a new transit system began operation in May 2000. This mandatory system provides an alternative that will help curb the impacts of increased visitation on the park.

Shuttle service is being provided along two routes. The main route, approximately eight miles each way, services the Zion Canyon Road, a destination of the majority of park visitors. The other route, approximately 3.5 miles each way, connects the park to the neighboring town of Springdale. The total capital cost for the system including vehicles, parking facilities at the Visitor Center, Zion Canyon Theatre, and the gateway community of Springdale, a transit center, and maintenance facilities exceeded $20 million. Most of these funds came from a line-item appropriation in the NPS budget but over $3 million in FLHP funds have also been used for project development and capital costs. Annual cost to operate the system is approximately $2.5 million, or $1.00 per visitor. Park entrance fees were increased to support the operation of the system under the NPS fee demonstration program.

With the new transit system in place, personal vehicles are no longer allowed in the canyon, except for those visitors who are staying at the Zion Lodge which is located within the canyon. After arriving at the lodge, these visitors must leave their vehicles at the lodge, and use the transit system to travel within the canyon. Commercial tour buses were allowed in the canyon during the first year, but the goal is to eventually exclude them from the canyon once the shuttle service has all of the planned 52 transit units in service.

Within **Yosemite NP**, visitors have the option to use free shuttle services in three of the highest use areas in addition to a variety of concessioner-operated tours provided to the user for a fee. In Yosemite Valley, a fleet of 10 standard urban transit coaches and several experimental electric vehicles provide shuttle service along an eight-mile loop in the east end of Yosemite Valley. During the summer, the buses provide service every 6 to 10 minutes. In the winter, the service is operated every 20 minutes. Ridership on the route can reach 30,000 passenger boardings per day, and the vehicles are chronically overcrowded. The buses are owned by the NPS and are operated and maintained by Yosemite Concession Services (YCS).

YCS offers tours of the valley on open-air trams in the summer and in enclosed buses in the winter. Several tours with larger itineraries are based in Yosemite Valley, catering to the overnight guests.

The Yosemite Area Regional Transportation System (YARTS) is a Joint Powers Authority of the Counties of Merced, Mariposa, and Mono, which are adjacent to the park. In the summer of 2000, YARTS initiated a demonstration of expanded public transportation service to Yosemite Valley from three adjacent areas. The service includes one trip per day from the Highway 120 corridor east of the park, one trip from Wawona south of the park, and several trips along the Highway 140 corridor west of the park. If successful, the demonstration service could be expanded to provide more trips in the corridors where demand warrants.

Wildlife Drive at the **J.N. "Ding" Darling National Wildlife Refuge** at Sanibel Island, Florida is one of the most popular visitor attractions in the National Wildlife Refuge system, and is the main road in the refuge. The drive is one-way and traffic is limited to 15 miles per hour. During peak season, the sides of the road are frequently crowded with visitors who choose to get out of their cars at designated and non-designated stops. The Cross-Dike trail, a common stop along the drive, is the most congested area on the drive for both cars and pedestrians. The high traffic volumes on Wildlife Drive cause wildlife disturbance.

A guided tram tour offers the visitor an ideal opportunity to comfortably view the sights of Sanibel Island. The tram, which is fueled by propane and holds 38 to 40 passengers, operates from the Tarpon Bay Recreation area during peak season and from the Visitor Center in the off-peak period. The guided tour offers an educational experience in addition to reducing the number of vehicles that enter wildlife habitats. The concessioner that operates the tram service is limited to three, two-hour tram tours per day during peak season with one tram vehicle. Both refuge officials and visitors are pleased with the tram experience. The refuge plans to expand the opportunity for visitors to take the guided tour by increasing the number of trams available. The refuge is preparing to issue a contract for an additional concession specifically for trams or an expansion of the existing tram operation.

A number of other innovative projects are underway in Federal sites:

- A $150 million bus and light rail system at the Grand Canyon NP is being developed as a turnkey project using a private consortium and innovative financing.

- The Gateway National Recreation Area in the New York metropolitan area has solicited proposals for private development of a new ferry terminal at Breezy Point in Queens. The terminal will be used to serve the park, and to provide commuter ferry service for local residents.

- The Lowell National Historic Park is evaluating a major expansion of its 1.5-mile historic trolley network, with the objective of expanding service to a number of new attractions in the City of Lowell.

These and other examples illustrate that transit can be implemented successfully with strong partnerships and sound planning. Many sites are still struggling to implement transit systems, however, and even successful sites such as Acadia NP are still concerned about prospects for long-term funding.

2.0 Program

2.1 Overview

There appears to be strong justification for a Federal funding program that will assist in addressing Federal lands transit needs by providing the stability required for these systems to succeed. If a Federal lands transit funding program is established to assist in addressing the transit needs of the FLMAs, it is recommended that the following items be included in establishing the funding program:

- **A transit program with separate funding categories for each of the three DOI agencies (NPS, FWS, BLM) –** It is recommended that the new transit program include separate funding categories for each of the three DOI agencies. The multi-year authorizations allow opportunities to develop realistic long-range priority programs of projects and provides adequate lead time for cooperative, comprehensive transportation planning. By establishing separate funding categories, the FLMAs are provided long-range financing and flexibility to meet their needs.

- **A requirement that all projects be subject to the transportation planning procedures developed under Title 23 U.S.C. 204(a). The Section 204 procedures require the FLMAs to carry out transportation planning processes that are consistent with the statewide and metropolitan transportation planning processes in Title 23 U.S.C. 134 and 135.** It is recommended that the transit strategies and projects funded through this program be included in a continuous, comprehensive, coordinated transportation planning process that requires public involvement and participation with other stakeholders.

- **Flexibility to use funds for leasing of vehicles.** It is recommended that the funds be available for leasing of vehicles. Leasing is a financing tool that allows the FLMAs to reduce up-front capital purchases and allows payments to be spread out over an asset's useful life or planned period of use. It also allows for the use of capital assets for a limited period of time without having to acquire them outright.

- **Flexibility to use funds for contract operations.** It is recommended that the funds be available to fund contract operations. Contract operations allow the FLMAs to provide greater flexibility in providing service. Federal lands sites often experience varied seasonal demand patterns. A private entity can more easily adapt their schedule and labor force to such conditions. Also, using contract operations allows the FLMAs to buy existing service expertise and do not need to train their own staff or hire new staff to provide the necessary service.

If a Federal Lands transit program is established, the FTA and the FHWA will be better able to provide support to the FLMAs in the implementation of transit services.

2.2 Recommendations for Funding Authorization

The recommendations for short-term and long-term transit strategies developed for this study could be used as a basis for allocating funds provided through a Federal lands transit program to the NPS, the BLM and the USFWS. If capital and project development costs for the 2001-2010 period are used for allocation, the agency formula distribution could be as follows:

- NPS 91 percent
- BLM 2 percent
- USFWS 7 percent

If estimated operations and maintenance costs are considered in addition to capital and project development costs, the formula provides a slightly larger amount of funding to the BLM and the USFWS:

- NPS 88 percent
- BLM 3 percent
- USFWS 9 percent

Additional criteria could be considered in making these allocations, such as visitation levels and measures of traffic and parking congestion. Criteria could include traffic levels of service on key roadways or number of days when parking capacity is exceeded. In general, however, these additional variables probably complicate the formula beyond what is necessary.

The program could reward sites that have invested in existing systems. One option for accomplishing this is to incorporate existing system ridership, route-mileage, and/or investment into the formula. A simpler alternative is to dedicate a percentage of program funds to existing systems.

A needs-based formula would appear to be adequate for the first round of funding. Adjustments could be made in future years, based on expenditures and periodic reevaluation of needs.

3.0 Policy Guidance

Issues related to policy guidance including planning requirements, eligibility, and project selection criteria are discussed in this section.

3.1 Transportation Planning and Project Development

Site management plans, developed by the FLMAs, describe how sites will manage their resources, visitor use, and general development over a 10- to 20-year period. The transportation system in a site should support these overall management objectives. Therefore, the site management planning process should include a transportation planning process, and provide the genesis for transit proposals. Transit proposals developed as a part of the Gettysburg National Military Park General Management Plan, for example, addressed a variety of needs including traffic congestion, resource preservation and local business concerns.

The transportation planning processes developed under Title 23 U.S.C. 204(a) direct the FLMAs to work closely with interested parties throughout the transportation planning process. Inclusion of State and local governments, MPOs, gateway communities and others in the FLMA's planning process, including the development of site management plans, will help improve the viability of proposed transportation strategies. Cooperation with these agencies will also enable site managers to take advantage of professional transportation planning expertise available in these agencies. It is anticipated that these agencies will take the technical lead on projects of regional significance and provide technical support on projects that are more local or site-specific in nature. Personnel from FTA's regional offices, FHWA's FLH and Federal-aid division offices, and FHWA's Resource Centers are all potential sources of technical support. Each FLMA agency will need to determine how much additional technical expertise needs to be obtained internally as the program progresses.

3.2 Definition and Eligibility of Capital Projects

If a Federal lands transit program is established, agreements between the U.S. DOT and the FLMAs should be developed that define and describe project eligibility for the program. The primary purpose of the projects should be the provision of public transportation services within lands managed by the NPS, the BLM, or the USFWS; or public transportation services connecting these sites to adjacent or nearby communities. It is recommended that the program funds be available to enhance or expand existing public transportation systems that already provide service in or to these sites, as well as for establishing new public transportation systems.

Title 49 U.S.C. 5302, 5307, and 5309 describe expenditures that are eligible for funding under FTA programs. Title 23 U.S.C. 204 describes the expenditures that are eligible for funding for the FLHP program. These sections in Title 49 and Title 23 can provide a basis for determining project eligibility for FLMA transit projects.

Capital projects defined in Title 49 U.S.C. 5302 include:

A) Acquiring, constructing, supervising, or inspecting equipment or a facility for use in mass transportation, expenses incidental to the acquisition or construction, payments for the capital portion of rail trackage rights system agreements, transit-related intelligent transportation systems, ….;

B) Rehabilitating a bus;

C) Remanufacturing a bus;

D) Overhauling rail rolling stock;

E) Preventive maintenance;

F) Leasing equipment or a facility for use in mass transportation, subject to regulations that the Secretary prescribes limiting the leasing arrangements to those that are more cost-effective than purchase or construction; and

G) A mass transportation improvement that enhances economic development or incorporates private investment (a wide range of activities are defined specifically under this item).

Title 49 U.S.C. 5307 defines requirements for urbanized area formula grants. This section defines "associated capital maintenance items" to include "equipment, tires, tubes, and material, each costing at least 0.5 percent of the current fair market value of rolling stock comparable to the rolling stock for which the equipment, tires, tubes and material are to be used."

Title 49 U.S.C. 5309 defines eligible items under Capital Grants and Loans to include:

A) Capital projects for new fixed guideway systems, and extensions to existing fixed guideway systems, including the acquisition of real property, the initial acquisition of rolling stock for the systems, alternatives analysis related to the development of the systems and the acquisition of rights-of-way, and relocation, for fixed guideway corridor development for projects in the advanced stages of alternatives analysis or preliminary engineering;

B) Capital projects, including property and improvements needed for an efficient and coordinated mass transportation system;

C) The capital costs of coordinating mass transportation with other transportation;

D) The introduction of new technology through innovative and improved products, into mass transportation;

E) Capital projects to modernize existing fixed guideway systems;

F) Capital projects to replace, rehabilitate, and purchase buses and related equipment and to construct bus-related facilities;

G) Mass transportation projects planned, designed, and carried out to meet the special needs of elderly individuals and individuals with disabilities; and

H) The development of corridors to support fixed guideway systems, including protecting rights-of-way through acquisition, construction of dedicated bus and high-occupancy vehicle lanes and park and ride lots, and other non-vehicular capital improvements that the Secretary may decide would result in increase mass transportation usage in the corridor.

Title 23 U.S.C. 204 allows FLHP funds to be made available for any kind of transportation project eligible for assistance under Title 23 U.S.C. that is within or adjacent to or provides access to areas served by Federal lands highways. Projects eligible for funding under Title 23 U.S.C. 133 include capital costs for transit projects eligible for assistance under chapter 53 of Title 49. Therefore, FLHP funds are available for eligible capital costs under Title 49 U.S.C. 5302, 5307, and 5309. In addition to these transit capital projects, in Title 23 U.S.C. 204, FLHP funds are available for "the cost of transportation planning, research, engineering and construction of highways roads and parkways, or of transit facilities within public lands, national parks and Indian reservations." Furthermore, Title 23 U.S.C. 204 allows FLHP funds to be made available for many items that can support the implementation of transit systems. The following items are specifically included in Title 23 U.S.C. 204:

A) Transportation planning for tourism and recreational travel including the National Forest Scenic Byways Program, BLM Back Country Byways Program, National Trail System Program, and other similar Federal programs that benefit recreational development;

B) Adjacent vehicular parking areas;

C) Interpretive signage;

D) Acquisition of necessary scenic easements and scenic or historic sites;

E) Provision for pedestrians and bicycles;

F) Construction and reconstruction of roadside rest areas including sanitary and water facilities; and

G) Other appropriate public road facilities such as visitor centers as determined by the Secretary.

In many sites it will be desirable to locate a variety of transit support facilities outside site boundaries, including items such as parking areas, maintenance facilities, and storage yards. This may be accomplished in partnership with local agencies and organizations. It would be advantageous to include language in legislation allowing funds to be used outside of site boundaries for these purposes.

3.3 Operations and Maintenance Eligibility

The majority of funds for operations and maintenance should be provided from sources other than the potential federal lands transit program. While flexibility in the use of funds is desirable, the primary objective of the program is to provide for capital needs including preventive maintenance as defined by the FTA.

3.4 Project Selection

Agreements developed between the U.S. DOT and the FLMAs should include general guidelines for project selection. Each agency could then develop its own set of criteria. Agency directors and administrators could make the final decision on criteria with technical staff support. The NPS, for example, uses its Choosing by Advantage (CBA) methodology to select transit projects for funding. The CBA method provides for an evaluation of project proposals under a series of broad objectives:

- Protect cultural and natural resources;
- Provide for visitor enjoyment;
- Improve efficiency of park operations; and
- Provide cost-effective, environmentally responsible, and otherwise beneficial development for the NPS.

Factors are applied under the CBA objectives to help measure the effectiveness of project proposals. Some of the specific factors that can be used include:

- Transportation impacts, including reduced traffic congestion, improved safety, improved visitor experience, and improved access to sites with limited parking;
- Resource impacts, including mitigation of automobile impacts on natural, historic and cultural resources and/or improved access to sites with limited parking and roadway facilities;
- Economic impacts from a reduced need for investment in roadway and parking facilities, and in some cases, increased visitation and spending in the local area; and
- Increased recreational opportunities for visitors.

These criteria are primarily qualitative although certain impacts, such as traffic reduction and flow, can be quantitatively estimated. Agencies may apply quantitative criteria similar to those used in the FLHP Park Roads and Parkways program process, or for FTA's New Starts program, but tailored to the specific conditions of Federal lands sites. These measures could include items such as:

- Life-cycle cost;
- Life-cycle cost/rider;
- Operations and maintenance cost/rider;
- Revenue/operations and maintenance cost;
- Total ridership;
- Total ridership/total site visitation;
- Reduction in automobile vehicle miles and/or vehicle hours of travel; and
- Reduction of pollutants.

An additional criterion important to Federal lands transit funding is the existence and viability of a long-range funding plan. Federal sites competing for funding should demonstrate the ability to raise revenues over the long term through a variety of sources, if necessary. Long-term commitments from State, regional and local agencies, as well as business and private interests will be important in determining whether an initial investment should be made.

4.0 Monitoring and Reporting Systems

4.1 Transit System Monitoring

It is proposed that monitoring and reporting certain data on service characteristics and operations be required for agencies receiving program funds for transit. If the transit program is implemented, it will be used to fund transit services for markets and locations without a history of transit service. Good monitoring and reporting systems are therefore required to understand how well these systems are meeting their objectives. Reporting requirements must be adequate to assess the progress and performance of the program, but should be scaled and appropriate to the level of service and site resources. Requirements should be reassessed annually over the first several years to assure that they are realistic and are producing an accurate evaluation of the federal investment. Basic items to be reported could include, as appropriate to the level of transit service, site and agency resources, and other considerations:

- Annual fleet inventory including make, age and mileage of vehicles/vessels;
- Annual inventory of other facilities (maintenance, storage, shelters, etc.);
- Service characteristics;
  - Route maps and distances
  - Headways
  - Dates and hours of operation
  - Fares
  - Vehicle miles of service by month
  - Vehicle hours of service by month
  - Missed trips
- Ridership by route and month;
- Revenue by route and month;
- Accident/safety record; and
- Operations and maintenance cost.

Each agency would maintain its own database and provide the U.S. DOT an annual report summarizing the information in the database including identifying trends in costs, fleet/facility characteristics, ridership and revenue. Some States with numerous small, rural transit systems, such as Pennsylvania and North Carolina, already have systems in place that can serve as a model. The U.S. DOT and the FLMAs could choose

to periodically conduct detailed evaluations of larger FLMA systems including more detailed cost breakdowns, ridership surveys and interviews with site personnel to assess the success of these systems in meeting their stated goals and objectives.